

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE OF PAGES 1	
2. AMENDMENT/MODIFICATION NO. 1		3. EFFECTIVE DATE May 29, 2003		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
6. ISSUED BY USDA Forest Service Rocky Mountain Acquisition Service Team 2250 Highway 50 Delta CO 81416				7. ADMINISTERED BY (If other than Item 6)			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State, and ZIP Code)				<div style="display: flex; align-items: center;"> <div style="width: 20px; text-align: center;">(X)</div> <div>9A. AMENDMENT OF SOLICITATION NO. RMAST-03-179</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; text-align: center;"><input checked="" type="checkbox"/></div> <div>9B. DATED (SEE ITEM 11) May 22, 2003</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; text-align: center;"><input type="checkbox"/></div> <div>10A. MODIFICATION OF CONTRACT/ORDER NO.</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; text-align: center;"><input type="checkbox"/></div> <div>10B. DATED (SEE ITEM 13)</div> </div>			
CODE		FACILITY CODE					

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning **1** copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;

or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.

**The solicitation is modified by taking out references to Surface Hardening Treatment.
The original Schedule of Items is replaced by the attached revised Schedule of Items.
Replace the original specifications pages 7 through 30 with the attached revised specifications.**

Prebid tour date is changed from June 6 to June 16 at 10:00am.

Bids are due close of business on July 1, 2003.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) /s/Joel Butzin	
15B. CONTRACTOR/OFFEROR <i>(Signature of person authorized to sign)</i>	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA <i>(Signature of Contracting Officer)</i>	16C. DATE SIGNED 5/29/2003

PART I—THE SCHEDULE

SECTION B--SUPPLIES OR SERVICES AND PRICES/COSTS

Pay Item Number	Description	Quantity	Unit of Measure	Method of Measure	Unit Cost	Price
911(02)	Clearing and Grubbing	5087	L.F.	A.Q.	_____	_____
912(01)	Excavation	4334	L.F.	A.Q.	_____	_____
912(06)	Rolling Dip	9	Each	A.Q.	_____	_____
912(13)	Geosynthetics, Type Nonwoven	215	S.Y.	A.Q.	_____	_____
912(14)	Trail Passing Section	220	L.F.	A.Q.	_____	_____
912(15)	Talus or Ruble Rock Section	474	L.F.	A.Q.	_____	_____
935(01)	Rock Retaining Wall	115	S.Y.	A.Q.	_____	_____
935(04)	Borrow	45	C.Y	A.Q.	_____	_____
941(01)	Aggregate Surfacing, Grading D, Compaction Method B	5087	L.F.	A.Q.	_____	_____
951(01)	Mobilization	1	L.S.Q.	L.S.	_____	_____
952(02)	Install Sign Panel, Government Furnished	5	Each	A.Q.	_____	_____
952(03)	Treated Posts, Length 8', Dia. 6"	5	Each	A.Q.	_____	_____
956(01)	Bench	4	Each	A.Q.	_____	_____
					TOTAL	_____

Section 901 - Abbreviations, Acronyms, and Terms

901.01 Terms, Organizations, and Standards

(a) Specification Terms. These specifications are generally written in the imperative mood. In sentences using the imperative mood, the subject “the Contractor,” is implied. Also implied in this language is “shall,” “shall be,” or similar words or phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project. Wherever “directed,” “required,” “prescribed,” or similar words are used, the “direction,” “requirement,” or “order” of the CO is intended. Similarly, wherever “approved,” “acceptable,” suitable,” “satisfactory,” or similar words are used, they mean “approved by,” “acceptable to,” or “satisfactory to” the CO.

The word “will” generally pertains to decisions or actions of the CO.

Whenever in these specifications, or in other contract documents, the following terms (or pronouns in place of them) are used, the intent and meaning shall be interpreted as follows: reference to a specific standard, test, testing method, or specification shall mean the latest published edition or amendment that is in effect at the solicitation issue date for the public works contracts.

(b) Abbreviations and Acronyms

AASHTO American Association of State Highway and Transportation Officials

ABS Acrylonitrile-Butadiene-Styrene

AQ Actual Quantities

APA American Plywood Association

ASTM American Society for Testing and Material

AWP American Wood Preservers Association

in inch

CO Contracting Officer

DQ Design Quantities

EA Each

lbs pounds

HDPE High-Density Polyethylene

hr hour

ft foot, or foot

oz ounces

ft² square foot, or S.F.

in² square inches, or S.I.

LS Lump Sum

LSQ Lump Sum Quantities

yd³ cubic yard, or C.Y.

yd² square yard, or S.Y.

lbf poundforce

gal gallon

3

L.F. linear feet

S.F. square feet

S.Y. square yard

NBS National Bureau of Standards

NCMA National Concrete Masonry Association

PE polyethylene

PS Product Standard issued by the U.S. Department of Commerce

PVC polyvinyl chloride

SQ Staked Quantities

WCLIB West Coast Lumber Inspection Bureau

WWPA Western Wood Products Association

(c) English slope notation (horizontal: vertical). Express the slope as the ratio of a number of units horizontal to one unit vertical.

Section 902 - Definitions

When the following terms, or pronouns in place of them, are used in these specifications or in other contract documents, the intent and meaning are as follows:

Base Course. The layer or layers of specified material of designed thickness placed on a trailbed to support surfacing.

Batter. A backward and upward slope of the face of a wall.

Berm. The ridge of material formed on the outer edge of the trail that projects higher than the tread.

Borrow. Suitable materials taken from approved sources designated on the drawings or on the ground, to be used for embankments and backfilling.

Bridge. A structure, including supports, erected over a depression or stream, and having a deck for carry traffic.

Cap Rock. Rock placed in the top or uppermost layer in a constructed rock structure, such as a talus or rubble rock section or rock retaining wall.

Catch Point. The outer limits of a railway where the excavation and/or embankment intersect with the ground line.

Clearing Limit. The area over and beside the trail that is cleared of trees, limbs, and other obstructions.

Climbing Turn. A reverse in direction of trail grade without a level landing used to change elevation on a steep slope.

Compacted. Consolidation that is obtained by tamping or rolling suitable material until no noticeable displacement of material is observed.

Contracting Officer (CO). An official of the Government with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the CO acting within the limits of their authority as delegated by the CO.

Culvert. A drainage structure composed of rock, metal, or wood that is placed approximately perpendicular to and under the railway.

Cushion Material. Native or imported material, generally placed over rocky section of unsurfaced trail to provide a usable and maintained traveled way.

Danger Tree. An unstable tree 5 inches or greater in diameter at breast height that is likely to fall across the trail.

Designated on the Ground. The location of materials, work areas, and construction items, including lines and grades, marked on the ground with stakes, flagging, tags, or paint.

Drawings. Documents showing details for construction of a facility, including but not limited to straight-line diagrams, trail logs, standard drawings, construction logs, plan and profile sheets, cross-sections, diagrams, layouts, schematics, descriptive literature, and similar materials.

Duff. Organic material overlying rock or mineral soil.

Embankment. A structure of suitable material placed on the prepared ground surface and constructed to the trailbed elevation.

Excess Excavation. Material in the railway in excess of that needed for construction of designed railways.

Ford. A water-level stream crossing constructed to provide a level surface for safe traffic passage.

Full Bench. Trailbed constructed entirely on undisturbed material.

Grade. The vertical distance of ascent or descent of the trail expressed as a percentage of the horizontal distance.

Header Rock. Rock laid with the narrow end towards the face of the wall.

Inslope. Where the trail tread is sloped downward toward the backslope.

Mineral Soil. Soil or aggregate that is free from organic substances and contains no particles larger than 2 inches at their greatest dimension.

Outslope. Where the trail tread is sloped downward toward the embankment or daylight side of the trailway.

Sideslope. The natural slope of the ground, usually expressed as a percentage.

Slough. That material from the backslope or the area of the backslope that has raveled onto the trailbed.

Slump. Where the trailbed material has moved downward, causing a dip in the trail grade.

Special Project Specification. Specifications that detail the conditions and requirements peculiar to an individual project, including additions and revisions to the standard specifications.

Surfacing. Material placed on top of the trailbed or base course that provides the desired tread.

Suitable Material. Rock that can be accommodated in the trail structure, and soil free of duff with a recognizable granular texture.

Switchback. A reverse in direction of trail grade with a level landing used to change elevation on a steep slope, usually involving special treatment of the approaches, barriers, and drainages.

Trailbed. The finished surface on which base course or surfacing may be constructed. For trails without surfacing the trailbed is the tread.

Trailway. The portion of the trail within the limits of the excavation and embankment.

Tread. The surface portion of the trail upon which traffic moves.

Turnout. A short section of extra trail width to provide for passage of trail users.

Waterbar. A structure used for turning water off the trail, usually made of logs or stones.

Water Courses. Any natural or constructed channel where water naturally flows or will collect and flow during spring runoff, rainstorms, etc.

Section 903 - Intent of Contract

903.01 Intent. The intent is to provide for the completion of the project described in the contract. Furnish all labor, materials, equipment, tools, transportation, and supplies and perform all work required to complete the project in accordance with drawings, specifications, and provisions of the contract.

Section 904 - Maintenance for Traffic

904.01 General. Keep existing trails that are undergoing improvements open and maintained in such a condition as to safely accommodate traffic. Provide and maintain temporary detours, approaches, or crossings and intersections with trails, roads, businesses, parking lots, and campgrounds in a safe and passable condition. Perform no work that interferes or conflicts with traffic until a plan for handling traffic has been submitted and approved. Specific requirements for detours or closures are SHOWN ON THE DRAWINGS or in the SPECIAL PROJECT SPECIFICATIONS.

Before any suspension of work, take precautions necessary to prevent damage to the project, such as temporary detours, approaches, crossings, or intersections, and make provisions for normal drainage and to minimize erosion. Leave all trailways in a condition suitable for traffic unless otherwise specified. The Government may permit use of portions of the project during periods when operations are shut down. All maintenance attributable to permitted use during periods of work suspension will be provided by the Government.

The contractor is responsible for any maintenance that is not attributable to use or that is necessary during suspensions resulting from fault or negligence of the contractor.

Section 905 - Control of Materials

905.01 Handling Materials. Transport and handle all materials to preserve their quality and fitness for the work. Stockpile, load, and transport aggregates in a manner that will preserve specified gradation and avoid contamination.

Store materials to assure the preservation of their quality and fitness for the work. Locate stored materials to facilitate their prompt inspection. Sites on Government-administered land that are not already designated may be used for storage purposes and for placing of equipment only when approved in advance by the CO. Restore all storage sites in accordance with requirements SHOWN ON THE DRAWINGS or as otherwise specified. Arrangements for storage on other than designated sites are the responsibility of the contractor.

905.02 Material Sources

(a) Designated Sources. Sources for materials such as, but not limited to, soil, rock, or logs that are not available from trailway excavation or clearing operations will be designated. Sources of local materials designated in the SPECIAL PROJECT SPECIFICATIONS or SHOWN ON THE DRAWINGS are guaranteed by the Government for the quality and quantity of material in the source.

Use all needed suitable material from the source. The designation of a source includes the right to use areas SHOWN ON THE DRAWINGS for the purposes designated (such as plant sites, stockpiles, haul roads). Operations are restricted to the confines of the area(s) designated.

(b) Contractor-Furnished Sources. Furnish material that produces an end product equivalent in performance to that specified.

905.03 Restoration. Shape and grade borrow areas on Government administered land to make them stable and to minimize future erosion. Dispose of debris resulting from development of material sources by scattering, unless otherwise specified. Do not scatter debris within the clearing limits of trails or within roadsides. Cut off stumps to less than 12 inches above the ground as measured on the uphill side of the stump.

Section 906 - Measurement and Payment

906.01 General. Measurement and payment for contract work will be made only for and under those pay items included in the SCHEDULE OF ITEMS. All other work and materials will be considered incidental and included in the payment of the PAY ITEMS in the SCHEDULE OF ITEMS.

When more than one class, size, or thickness is specified in the SCHEDULE OF ITEMS for any PAY ITEM, suffixes will be added to the item number to differentiate between the items.

906.02 Determination of Quantities. The following measurements and calculations are to be used to determine contract quantities for payment:

Make measurements for seeding, geotextiles, and erosion control blankets along slope lines.

For retaining walls, measure by the square meter of front wall face.

Measure structures according to neat lines SHOWN ON THE DRAWINGS or as altered by the CO in writing to fit field conditions. Make measurements along the centerline and parallel to the specified grade or foundation or as SHOWN ON THE DRAWINGS.

Deduct lengths for stairways, turnpike, puncheon, retaining walls, wire baskets, switchbacks, bridges, and bridge approaches from the measurement of excavation in Section 912 unless these items are specified as incidental to excavation in Section 912.

For standard manufactured items, such as fence, wire, plates, rolled shapes, and pipe conduits identified by gage, weight, section dimensions, and the like, such identification shall be considered the nominal weights or dimensions. Manufacturer's tolerances will be accepted unless controlled by tolerances in the cited specifications.

906.03 Units of Measurement. Payment will be made by units defined and determined according to standard metric measure and by the following:

(a) Cubic Yard. A measurement computed by one of the following methods:

(1) Excavation, embankment, or borrow. The measurement computed by the average-end-area method from measurements made longitudinally along a centerline or other reference line.

(2) Material in place or stockpiled. The measurement computed with the dimensions of the in-place material using average-end-area method or prismoidal formula.

(3) Material in the Delivery Vehicle. The measurement computed using measurements of material in the hauling vehicles at the point of delivery. Vehicles shall be loaded to at least their water-level capacity. Leveling of the loads may be required when vehicles arrive at the delivery point.

(b) Each (EA). One complete unit, which may consist of one or more parts.

(c) Lump Sum (LS). The quantities that denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job.

906.04 Methods of Measurement. One of the following methods of measurement for determining final payment is DESIGNATED ON THE SCHEDULE OF ITEMS for each PAY ITEM:

(a) Designed Quantities. These quantities denote the final number of units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, and drawings. Changes in the number of units DESIGNATED IN THE SCHEDULE OF ITEMS may be authorized under the

following conditions:

- (1) As a result of changes in the work approved by the CO.
- (2) As a result of the CO determining that errors exist in the original design that cause a PAY ITEM quantity to change by 15 percent or more.
- (3) As a result of the contractor submitting to the CO a written request showing evidence of errors in the original design that cause a PAY ITEM quantity to change by 15 percent or more. The evidence must be verifiable and consist of calculations, drawings, or other data that show how the designed quantity is believed to be in error.

(b) Staked Quantities (SQ). These quantities are determined from staked measurements prior to the construction.

(c) Actual Quantities (AQ). These quantities are determined from measurement of completed work.

(d) Vehicle Quantities. These quantities are measured or weighed in hauling vehicles.

(e) Lump Sum Quantities (LSQ). These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job.

906.05 Government-Furnished Materials. When materials are furnished by the Forest Service, the note "Government-Furnished Materials" will be added to the description of the PAY ITEM.

Section 907 - Quality Assurance and Quantity Measurement

Description

907.01 Work. Work consists of providing certification that the quality and quantity of construction conform to the drawings, specifications, and requirements of the contract.

Construction

907.02 Certification and Measurements

(a) Offsite-Produced Materials. Furnish signed certificates executed by the manufacturer, supplier, or vendor, stipulating that all offsite-produced materials incorporated in the work meet applicable requirements SHOWN ON THE DRAWINGS or stated in the specifications. Furnish a certificate for each commodity or invoice.

(b) Quantity Measurements. Submit quantities to the CO for periodic progress payments, and the CO will compute payments. Quantities are subject to verification.

907.03 Records. Maintain a set of contract drawings depicting as-built conditions resulting from approved changes. Maintain the drawings in a current condition and indicate changes from the original contract drawings in red. Give the drawings to the CO upon the completion of the contract work.

Measurement

907.04 Method. There will be no separate measurement for this item.

Payment

907.05 Basis. Payment will be considered incidental to other pay items in this contract.

Section 908 - Staking, Flagging, and Cleanup

Description

908.01 Work. This work consists of establishing any control points needed in addition to existing staking, and removing and disposing of all construction stakes, tags, flagging, and plastic ribbon from the project area.

Construction

908.02 General. The Government will set initial construction stakes or flagging, and control points, and furnish the contractor with all necessary information relating to lines, slopes, and grades. These stakes and flagging constitute the field control.

Furnish and maintain all additional stakes, flagging, templates, batter boards, and other materials and supplies necessary for marking and maintaining points and lines established. Do not perform work in the absence of control points. If any construction control points are destroyed, displaced, or erroneous, notify the CO. Uniformly contour alignment and construct grade from control point to control point.

Remove all construction stakes, tags, flagging, and plastic ribbon from the project area within 7 days after the final inspection of all other work on the project. Dispose of all stakes, tags, flagging, and plastic ribbon off Government- administered lands unless otherwise designated.

Measurement

908.03 Method. There will be no separate measurement for this item.

Payment

908.04 Basis. Trail staking, flagging and cleanup will be considered incidental to other pay items in this contract, and additional payment will not be made.

Section 911 - Clearing and Grubbing

Description

911.01 Work. Work consists of clearing, grubbing, trimming, removing, and treating trees, logs, limbs, branches, brush, plants, and other vegetation within the clearing limits. Work includes the felling and treatment of designated trees outside the clearing limits. Also included are the protection from injury or defacement of trees and other objects not designated for removal and the treatment of damaged trees.

Construction

911.02 Clearing Limits. Clear to the dimensions SHOWN ON THE DRAWINGS or 12 inches beyond the fill and backslope catch points, whichever is greater.

911.03 Material to Be Cleared. Remove and dispose of trees, logs, limbs, branches, brush, herbaceous plants, and other vegetation within the clearing limits, except for the following:

- (a) Live, sound, and firmly rooted trees of the size SHOWN ON THE DRAWINGS.
- (b) Live brush, herbaceous plants, and trees between the trailway and the clearing limits that are less than 12 inches in height and less than 3/8 inch in diameter at ground line.

Except as provided above, cut all limbs and branches more than 3/8 inch in diameter that extend into the clearing limits. Cut limbs flush with the tree trunks or stems or cut at the ground surface as SHOWN ON THE DRAWINGS.

Fall and limb designated trees.

911.04 Damaged Trees. When felling, cutting, or trimming, do not cause bark damage to standing timber. If damage does occur to standing trees, treat the injured trees as SHOWN ON THE DRAWINGS. Remove and dispose of trees with major roots exposed by construction that are rendered unstable.

911.05 Removal of Stumps. Remove all stumps within the trailbed. Remove stumps located between the edge of the trailbed and the edge of the trailway that cannot be cut flush with the finished slope or that are not tightly rooted.

911.06 Disposal of Clearing Slash, Logs, Stumps, Brush, and Roots. Limb all felled trees to a 4-inch diameter top, including designated trees outside the clearing limits. Do not place clearing slash, logs, stumps, brush, or roots in concentrated piles. Scatter all logs, limbs, lopped tops, brush, and grubbed stumps and roots below the trailway and outside the clearing limits, with the following

- (a) Where the sideslope above the trail is less than 10 percent, material may be scattered above the trail.
- (b) Logs may be left on the uphill side of the trail if they are placed so that they will not move into the clearing limits.

Do not place clearing and grubbing debris in water courses, snow ponds, lakes, meadows, or in locations where it could impede the flows to, through, or from drainage structures.

Measurement

911.07 Method. Measure the quantities in accordance with Section 906.

Payment

911.08 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price for each PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS. Make payment under:

PAY ITEM

PAY UNIT

911(02) Clearing and GrubbingL.F.

Section 912 - Excavation and Embankment

Description

912.01 Work. Work consists of the excavation and placement of excavated material, regardless of its nature, from within the railway or from other sources, except for material included under other pay items SHOWN IN THE SCHEDULE OF ITEMS. Includes excavation, embankment, and backfill construction required to shape and finish the trailbed, ditches, backslopes, fill slopes, drainage dips, trail passing sections, and turnouts. Also includes excavation and embankment work required to construct shallow stream fords and gully crossings, talus and rubble rock sections, and climbing turns.

Materials

912.02 Requirements. Use materials meeting the requirements of the following sections:

961 -----Rock, Grid Pavement Units, and Aggregate

962 -----Material for Timber Structures

964 -----Geosynthetics

Construction

912.03 Use and Disposal of Excavated Material. Conserve and use all suitable material for specified work. Conserve excess excavated rock suitable for specified project work and use in place of materials from designated sources.

Remove all duff and debris from within railway limits and uniformly spread outside the clearing limits, not more than 4 inches in depth (unless otherwise SHOWN ON THE DRAWINGS). Do not obstruct drainage or create piles, berms, or windrows of debris.

Place excess and unsuitable excavation beyond the downslope edge of the trailbed. Do not obstruct drainage and spread to a depth not exceeding 4 inches. This includes any material removed in the grubbing operation and deposited in the same area.

Place rocks over 4 inches in greatest dimension not used in construction beyond the hinge point on the downslope side. Place rocks so that the tops are at least 6 inches lower than the trailbed surface. Ensure that no blockage of drainage or creation of a windrow effect occurs.

912.04 Trailway Excavation and Embankment. Minor deviations of ± 1 foot in vertical alignment and 3 feet in horizontal alignment with smooth transitions of at least 30 feet on each side of the deviation are acceptable unless otherwise SHOWN ON THE DRAWINGS.

Construct embankments with suitable compacted material. Compact all disturbed soil within the trailbed area.

Remove any rock within or above the backslopes that is unstable. Use or dispose of rock in accordance with Subsection 912.03.

Leave the finished slope in a uniform and roughened condition.

Make necessary adjustments of horizontal or vertical alignment, within the tolerances specified in this subsection, to produce the designed railway section and balance earthwork. Such adjustments shall not be considered as changes.

912.05 Trailbed Finish. Fill holes with suitable material, compact, and cut high points to provide a uniform trailbed finish.

912.06 Talus or Rubble Rock Sections. Through talus or rubble rock slide areas, fill all voids with suitable material to the depth SHOWN ON THE DRAWINGS. Use cap rocks that weigh a minimum of 130 pounds and have a length of at least twice their width. At least 50 percent of all hand placed outer rocks should weigh a minimum of 130 pounds. Construct tread by building out rather than by removing material from the inner bank.

912.07 Ditches. Construct ditches to be free of loose rocks, roots, sticks, and other obstructions.

912.08 Geosynthetics. Where SHOWN ON THE DRAWINGS, place geosynthetics flat and parallel to centerline of the trail before placing embankment. Overlap geosynthetics a minimum of 2 feet. Install anchors or fasteners as recommended by the geosynthetic manufacturer.

Measurement

912.09 Method. Measure the quantities in accordance with Section 906.

Payment

912.10 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price for each PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS.

Make payment under:

PAY ITEM	PAY UNIT
912(01) Excavation	L.F.
912(06) Rolling Dip	EA
912(13) Geosynthetics, Type <u>Nonwoven Stabilization</u>	S.Y.
912(14) Trail Passing Section	L.F.
912(15) Talus or Rubble Rock Section	L.F.

Section 935 - Rock Retaining Walls

Description

935.01 Work. Work consists of constructing rock retaining walls, including excavating, placing borrow, backfilling, and trailbed and slope finishing.

Materials

935.02 Requirements. Use materials meeting the requirements of the following section:

961 -----Rock, Grid Pavement Units, and Aggregate

964 -----Geosynthetics

Construction

935.03 Excavation. Excavate in accordance with Section 912 to provide a full bench foundation.

935.04 Wall Construction. Construct rock retaining walls at locations SHOWN ON THE DRAWINGS and DESIGNATED ON THE GROUND.

Stagger vertical joints a minimum of 4 inches horizontally from vertical joints in adjoining courses.

Use uniformly distributed header rocks for at least 25 percent of the rocks in the front and rear faces of the wall each having a length at least 2 1/2 times its width. Place all header rocks with the greatest dimension extending into the wall (at right angle to trail centerline), except at corners. At corners, lay alternating courses containing headers with greatest dimension parallel with wall.

Place the exposed face of each rock parallel to the face of the wall in which it is set.

Stabilize each rock on the course that supports it. Do not break, loosen, or displace rocks already set.

Use rocks of a general rectangular shape. Fill voids with small rock fragments or fine aggregate.

Measurement

935.05 Method. Measure the quantities in accordance with Section 906.

Payment

935.06 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price for the PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS.

Make payment under:

52

PAY ITEM

PAY UNIT

935(01) Rock Retaining WallS.Y.

935(04) BorrowC.Y.

Section 941 - Aggregate Surfacing and Base Course

Description

941.01 Work. This work consists of furnishing, hauling, watering, placing, and compacting aggregate surfacing or base course; furnishing and installing retainers; and geosynthetics.

Materials

941.02 Requirements. Use materials meeting the requirements of the following sections:

961 -----Rock, Grid Pavement Units, and Aggregate

962 -----Material for Timber Structures

964 -----Geosynthetics

Produce aggregate by pit run, screening, or crushing. Obtain materials from sources SHOWN ON THE DRAWINGS or other sources approved by the CO in writing.

941.03 Handling Materials. Stockpile, remove, transport, and spread aggregates in a manner that will preserve specified gradation and avoid contamination. Do not intermingle stockpiles of aggregate having different gradations.

941.04 Sampling Aggregate. Submit test results and a Certificate of Compliance verifying that aggregate gradation meets contract requirements. Sample the material before incorporation into the work as follows:

(a) for onsite-produced materials at crushing or screening plants, after additions of any necessary blending material.

(b) for commercially produced aggregates, at the producer's plant or stockpile.

The sampling will not be considered a final acceptance and will not preclude later sampling and testing after final processing of the material. Such sampling does not relieve the contractor of responsibility of providing quality control measures to ensure compliance with contract requirements.

Construction

941.05 Preparation of Subgrade. Prepare and finish trailbed as required under Section 912. Obtain written approval of the CO before placing aggregate.

941.06 Spreading and Compacting. Use aggregate that is uniformly mixed at optimum moisture content and spread and compact in layers to the final thickness and width SHOWN ON THE DRAWINGS. The maximum thickness of any one layer shall be 3 inches. Obtain compaction by one of the following methods as SHOWN IN THE SCHEDULE OF ITEMS:

(a) by hand, using nonmechanized compaction tools over the full area of each layer until visual displacement ceases;

(b) by mechanical vibratory compactors over the full area of each layer until visual displacement ceases, but not fewer than three complete passes;

(c) by using a roller or mechanical hand tamper until the density is at least 90 percent of the maximum density, as determined by AASHTO T 99, Method C or D.

Immediately following final spreading, smoothing, and compacting, correct any irregularities or depressions that develop by adding or removing material until the surface is smooth, uniform, and compacted.

941.07 Acceptance, Testing, Sampling, and Tolerances. Do not vary the total compacted thickness of the aggregate by more or less than ½ inch from the specified thickness or place it consistently below or above the specified depth.

Do not vary the aggregate width by more than ± 3 inches from the specified width or place it consistently narrower or wider than the specified width.

941.08 Timber, Log, or Rock Retainers. Bed retainers along their entire length and as SHOWN ON THE DRAWINGS.

Measurement

941.09 Method. Measure the quantities in accordance with Section 906.

Payment

941.10 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price of each PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS.

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Make payment under:

PAY ITEM

PAY UNIT

941(01) Aggregate Surfacing, Grading D

Compaction Method B L.F.

Section 951 - Mobilization

Description

951.01 Work. This work consists of moving personnel, equipment, material and incidentals to the project and performing all work necessary before beginning work at the project site.

Mobilization includes the costs associated with obtaining permits, insurance, and bonds. Mobilization is not intended to pay for the costs of materials before they are used on the project site.

Payment

951.02 Basis. Pay for the accepted work at the contract unit price for the PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS.

Make progress payments for mobilization as follows:

- (a) Reimburse for bond premiums before issuing the Notice to Proceed if evidence of payment is received.
- (b) When 5 percent or more of the original contract amount is earned from other PAY ITEMS, pay mobilization at the rate of 50 percent, or up to 5 percent of the original contract amount, whichever is less.
- (c) When 10 percent or more of the original contract amount is earned from other PAY ITEMS, pay mobilization at the rate of 100 percent, or up to 10 percent of the original contract amount, whichever is less.
- (d) Pay any unpaid amount for mobilization upon final acceptance of all work items.

Make payment under:

PAY ITEM	PAY UNIT
951(01) Mobilization	LS

Section 952 - Sign, Post, and Cairn Installation

Description

952.01 Work. This work consists of furnishing and installing signs and posts and constructing rock cairns.

Materials

952.02 Requirements. Use materials meeting the requirements of the following sections:

961 -----Rock, Grid Pavement Units, and Aggregate

962 -----Material for Timber Structures

Construction

952.03 General. Erect signs, posts, and cairns at the locations SHOWN ON THE DRAWINGS or DESIGNATED ON THE GROUND.

952.04 Sign Installation. Tighten hardware snug, but do not damage the sign panel surface.

952.05 Post Installation. Dig post hole width not more than three times the width of the post and to the depth SHOWN ON THE DRAWINGS. If necessary because of obstacles, the posthole may be moved within the tolerances SHOWN ON THE DRAWINGS, or stabilize the post with concrete or rock mounds built in accordance with rock cairn specifications.

Compact suitable material between the post and the posthole in 4-inch layers to produce a solid and plumb installation.

952.06 Rock Cairn Construction. Slope each rock layer toward the center. Place each rock with at least three points of contact. Do not wedge small rocks into cracks between large rocks to stabilize the large rocks.

Measurement

952.07 Method. Measure the quantities in accordance with Section 906. Rock cairns built to support signposts will be considered incidental to the PAY ITEM for signposts, and separate payment will not be made.

Payment

952.08 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price for each PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS. Make payment under:

PAY ITEM

PAY UNIT

952(01) Install Sign Panel,

Government-FurnishedEA

952(03) Treated Posts,

Length __8__ ft - Dia. __6__ -inchEA

Section 956 - Benchs

Description

956.01 Work. This work consists of furnishing and installing a vinyl coated expanded metal bench.

Materials

956.02 Requirements

BENCH

- A. Model: S570 - 6' bench w/back, in-ground mount with diamond pattern.
- B. Color: plastisol coating - brown, frame - brown
- C. As manufactured by Wabash Valley Mfg., Inc., P.O. Box 5, 505 E. Main, Silver Lake, IN 46982. Phone, 800-253-8619, or approved equal

CONCRETE

Make the concrete using a dry, preproportioned, blended and bagged mix meeting the requirements of ASTM C387 and mixed at the jobsite in accordance with the manufacturer's recommendations.

Construction

956.03 General

BENCH INSTALLATION

- D. See description of work for bench locations.
- E. Excavate holes for legs to depth recommended by manufacturer ensuring a minimum of 2" below end of leg to bottom of hole. Installation instructions area available on manufacturers website www.wabashvalley.com.
- F. Backfill hole with concrete. . Ensure legs are plumb.
- G. Assemble bench according to manufacturer's instructions.
- H. The area shall then be cleaned up by removing and disposing of all materials not utilized.

Measurement

956.04 Method. Measure the quantities in accordance with Section 906. Concrete to support bench legs will be considered incidental and not separate payment will be made..

Payment

956.05 Basis. Pay for the accepted quantities in accordance with Section 906 at the contract unit price for each PAY ITEM SHOWN IN THE SCHEDULE OF ITEMS.

Make payment under:

PAY ITEM

PAY UNIT

956(01) BenchEACH

Section 961 - Rock, Grid Pavement Units, and Aggregate

961.01 Rock. Use sound, durable rock free of rifts, seams, laminations, and minerals that could deteriorate as a result of weathering. Dress rock to remove thin or weak portions before use.

Furnish rock of the size, shape, weight, and face area necessary to produce the general characteristics and appearance SHOWN ON THE DRAWINGS.

961.06 Crushed Aggregate for Base or Surface Course. Use crushed aggregate meeting the requirements of Tables 961-1 and 961-2 and SHOWN IN THE SCHEDULE OF ITEMS.

At least 50 percent, by weight, of the aggregate retained on the No. 4 sieve is to have one fractured face. Naturally fractured faces may be included in the 50-percent requirement.

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The CO may approve other gradations if they are similar to those specified. Grade aggregate from coarse to fine within the gradation band.

Table 961-1. - Crushed and screened aggregate grading requirements for base or surface courses.

Percent Passing

(AASHTO T 11 and T 27)

Sieve	Grading A	Grading B	Grading C	Grading D
1 inch				
¾ inch	100	100		
½ inch	50 - 90	70 - 100		
3/8 inch			100	100
No. 4	30 - 65	45 - 75	60 - 85	70 - 80
No. 8	25 - 55	30 - 60	35 - 70	45 - 70
No. 30		15 - 40		20 - 40
No. 200	6 - 12	6 - 20	5 - 20	7 - 20

Table 961-2. - Crushed Aggregate Quality Requirements

Description AASHTO Test Method Requirement

Percent Wear T 96 40 Max.

Durability Index,

Course and Fine T 211 35 Min.

Liquid Limit T 89 35 Max.

Plasticity Index T 91 5-11

Section 962 - Material for Timber Structures

962.01 Timber. Select timber from designated sites on Government administered land. Select the species and sizes of materials as SHOWN ON THE DRAWINGS. Select timber that is straight, sound, and free of defects.

Obtain CO approval of logs and trees before felling or moving them to the site. Fell trees to prevent damage to standing timber and to minimize breakage of trees to be used. Buck logs from felled trees in such a way to minimize waste and to obtain the required length and diameter.

Peel logs, square the ends, and trim the knots and limbs flush unless otherwise SHOWN ON THE DRAWINGS. Scatter the debris from the processing of timber away from the trail and so it will not block the trail or plug water courses.

962.02 Structural Lumber. Use structural lumber meeting the requirements of AASHTO M 168.

962.03 Hardware. Use drift pins and dowels meeting the requirements of the American Society for Testing and Material (ASTM) A307 and galvanized hardware meeting the requirements of AASHTO M 232.

Use nails of standard form or as SHOWN ON THE DRAWINGS.

962.04 Preservative. Use wood preservative treatment methods meeting the requirements of AASHTO M 133 as SHOWN ON THE DRAWINGS.

Completely and accurately fabricate all treated timber before treatment. Provide treated timber that is clean and free of dripping treatment liquids. Submit a certified copy of the lot certification, by a qualified independent inspection and testing agency, to the CO for each charge of preservative, stating penetration in inches and retention in lbs per cubic foot (assay method). In addition, provide a written certification from the producer of the treated products that "Best Management Practices for Treated Wood in Western Aquatic Environments," published by the Western Wood Preservers Institute and Canadian Institute of Treated Wood, were utilized. Include a description and appropriate documentation of the Best Management Practices used.

Except for pine, incise before treatment all surfaces greater than 2 inch in width and all Douglas fir and western larch surfaces. Field treat, as SHOWN ON THE DRAWINGS, any area hewn, notched, cut, or drilled after the initial preservative treatment.

Section 964 - Geosynthetics

Materials

964.01 Geotextiles

(a) Use geotextiles, alone or in combination with other geosynthetics, that meet the following Class B requirements for subsurface drainage as specified in AASHTO M288.

(1) Grab Strength at 50 percent elongation,
ASTM D4632-9180-lbf min.

(2) Seam Strength,
ASTM D 463270-lbf min.

(3) Puncture Strength,
ASTM D4833-8825-lbf min.

(4) Mullen Burst,
ASTM D 3786-87130-lbf min.

(5) Trap Tear Strength,
ASTM D4533-9125-lbf min.

(b) Use geotextile meeting the following critical physical properties, unless otherwise SHOWN ON THE DRAWINGS.

(1) Material StructureNonwoven (all purposes)
or Silt Film

(for reinforcement or separation)

(2) Polymer CompositionPolypropylene

(3) Apparent Opening,
ASTM D 4751-870.012-inch max.

(4) Permittivity, ASTM
D4491-92100-gal/minute/ft² min.

(5) Ultraviolet Degradation.....70 at 150 hours

964.02 Geonet. Use geonet meeting the following critical physical properties unless otherwise SHOWN ON THE DRAWINGS.

(a) Polymer Composition of Core
(Net or Mesh)Medium PE or HDPE

(b) Permeability0.0004 in/second min.

(c) GeotextileMust meet all Section
964.01 requirements

(d) Compressive Strength
of Core, ASTM D162170 lbf/in², min.

(e) Transmissivity with Gradient
at 0.1, Pressure at 1.5 lbf/in²0.001 yd²/second min.

964.03 Geogrids. Use geogrids made from polypropylene or coated polyester that meet the following critical physical properties.

(a) Polymer TypeHDPE, Polypropylene,
or Polyester

with Acrylic or PVC coating

(b) Weight per Unit Area,
ASTM D5261-925-oz/yd² min.

(c) Maximum Aperture Size

(1) Machine Direction (MD).....4 inches

(2) Cross-Direction (XD).....3 inches

(d) Wide-Width Strip Tensile Strength
at 5 percent Strain, ASTM D4595-86:

(1) Machine Direction (MD)550-lbf/ft min.

(2) Cross-Direction (XD).....400-lbf/ft max.

964.04 Geocells. Use geocells meeting the following physical properties.

(a) CompositionPE or HDPE

(b) Geocell Weight expanded:0.35-lbs/ft² min.

(c) Minimum Cell Seam Peel Strength,

U.S. Army Corps of Engineers

Technical Report G: -86-19,

Appendix A.....180-lbf min.

(d) Expanded Dimensional

PropertiesAS SHOWN ON DRAWINGS